



another, or received interference from negotiated foreign stations, sometimes to very substantial amounts as well.

Calculation of the actual levels of interference received by the class A stations presently licensed shows that not one of them in the contiguous 48 states is actually protected to its nominally protected value at its transmitter site, much less at the skywave nominally protected contour. And even of the Alaska class A stations - as far as some of them are from the lower 48 - only 4 of the 16 have calculated values of RSS at their transmitter sites less than 0.5 mV/m. And those 4 are at very remote locations.

These values are RSS rather than the single signal calculation prescribed by the rules for protection of the class A 0.5 mV/m 50% skywave contour, but that illustrates even further the irrelevancy of the present rule - since multiple 25  $\mu$ V/m signals can be present at the protected contour.

But even if only single signal analysis is performed, and even leaving out the very high values of interference to US class A stations caused by stations in the Caribbean and Central and South America, overlap of large portions of the “protected” 0.5 mV/m 50% skywave contour of those stations by domestic and nearby foreign stations is significant and often egregious.<sup>1</sup>

Figures 1 through 7 provide illustrative examples of a variety of these conditions: 25  $\mu$ V/m (10% time) overlap of class A station 0.5 mV/m (50% time) contours on U.S. territory. Based on these and many other instances it is clear that protection of class A station skywave service is at best anachronistic. It just doesn't exist, and its protection in the rules should be eliminated.

The table at the proposed 73.182(o) in the Commission's publication of the NPRM, FCC 15-142, did not modify the footnotes to that table. The same table in the Federal Register publication has a set of new, modified footnotes. In the Federal Register footnotes, footnote 1 is “Groundwave” and this applies to the night permissible interfering signal for class 1 stations. It is not clear if this is an inadvertent oversight or deliberate. It should be corrected, however, since it would allow egregious skywave interference to class A stations, so long as the skywave interferer did not have groundwave overlap with the class A station. Class A stations should be

---

<sup>1</sup> The interference/overlap calculated by the FCC's current skywave propagation analysis method does not properly account for paths which are more than a single hop (~3200 km), and exaggerates the values of paths with one terminal south of about 30 degrees NL, and so the very high values of calculated “interference” from stations in, for example, Santiago, Chile or São Paulo, Brazil, can be discounted. Stations in Central America and northern South America (Venezuela, Columbia) are undoubtedly real contributors but have not been included in the examples in these comments because of the shortcomings of the FCC method.

protected against skywave interference to their 500  $\mu\text{V}/\text{m}$  groundwave contour on an RSS basis, just as class B stations are protected to their nominal 2.0  $\text{mV}/\text{m}$  contour.

Groundwave protection from first adjacent channel overlap on a 0 dB 500  $\mu\text{V}/\text{m}$  basis as proposed by the Commission is desirable as well.

Critical hours protection of class A stations should not be eliminated, but should be modified to provide protection of the 500  $\mu\text{V}/\text{m}$  groundwave service of the class A station. Daytime skywave, which is the effect which critical hours protects against, is a real phenomenon, based on instances of it we have observed particularly on certain north-south west coast paths.

#### Changes in RSS Calculation Methods

§5 & 6. We support the proposed changes in the RSS calculation methods to return to the pre-1991 rule. The major effect of the 1991 changes has been to make service improvement or even site changes without significant service improvement difficult and in some cases impossible. Wideband receivers which were the putative rationale for the rule change have never appeared on the consumer market, and thus the 1991 rule change should be reversed.

#### Modification of Adjacent Channel Groundwave Overlap Standards

§8. As described quite succinctly in the Commission's NPRM text, modification of the rules to return to 0 dB first adjacent channel protection is justified. Additionally, a 500  $\mu\text{V}/\text{m}$  signal is essentially unuseable in the noise environment that now exists. Therefore revising the second adjacent channel protection to 25  $\text{mV}/\text{m}$  overlap and modification of the normally protected service area to the 2.0  $\text{mV}/\text{m}$  contour is another method of providing standards which will allow station modifications to overcome the prevalent noise level of the modern environment.<sup>2</sup>

---

<sup>2</sup> Reference should be made to two significant studies on urban RF noise levels in the medium frequency band produced in the 1980s!

*"Feasibility Study for Improvement of Service for CBJ/CJBC Toronto, Ontario, ER-463"* Peter Kahn, P. Eng., Canadian Broadcasting Corporation, June 17, 1985.

and

*"CBJ/CJBC Toronto Coverage Survey, ER-438"* P. Warmbein, Canadian Broadcasting Corporation, December 13, 1984.

ITU-R P.372-12 also provides some data on man-made noise at MF, specifically at Figure 10.

### Cross-Service FM Translators

§9 & 10. We support the proposed changes in the cross-service FM translator rules.

### Moment Method Proof Recertification

§11. We support the proposed changes in the partial proof of performance rules.

§12 & 13. We support the elimination of the recertification rules for moment method proofs, much as periodic partial proofs of performance were eliminated for conventional field strength measurement proofs of performance. We do not feel that the reference field strength measurements for moment method proofs serve any really significant purpose. Experienced engineers can make measurements to determine “external verification that a directional antenna array is operating properly” without the necessity of an original set of “reference” measurements.

While we have sufficient experience to be aware that some skirt fed antenna towers can be successfully modeled with moment method techniques, we do not feel that a general rule change allowing arrays with skirt fed towers to use moment method proof of performance techniques for licensing should be adopted at this time. There are sufficient ambiguities in the process of moment method modeling of skirt fed antennas to make proper administrative review of them burdensome and impractical. We do feel that this question should continue to be studied, and suggest that it be made a part of the Further Notice of Proposed Rulemaking in this proceeding.

### Expanded Band Station Operation

§14 & 15. We agree that dual operation of original “high interferer” stations and their expanded band companions should be terminated, and we do not believe that a notice or further transition period is justified. We also feel that future use of the expanded band should be on the same basis and with the same engineering standards as the original MF band.

### Conclusion

We agree with numerous of our colleagues on many of these matters, and particularly with sentiments expressed by our colleagues at duTreil, Lundin & Rackley:

*“We believe that AM radio stations can be relied upon to provide needed service well into the future, but a new direction in regulation of factors that impact their signal transmission quality is needed to provide them with the flexibility they will need to compete with the ever increasing*

*number of alternative audio programming delivery systems they face today and in the future.*

*The needed rule changes should be made with a pro-service objective and should avoid Utopian assumptions about what can be accomplished through regulation – such as attempting to eliminate interference simply by “outlawing” it, which can accomplish nothing as long as the stations involved remain in operation. A pro-service approach would make it possible for AM stations to make changes that overcome interference and provide better coverage to their actual audiences.”*

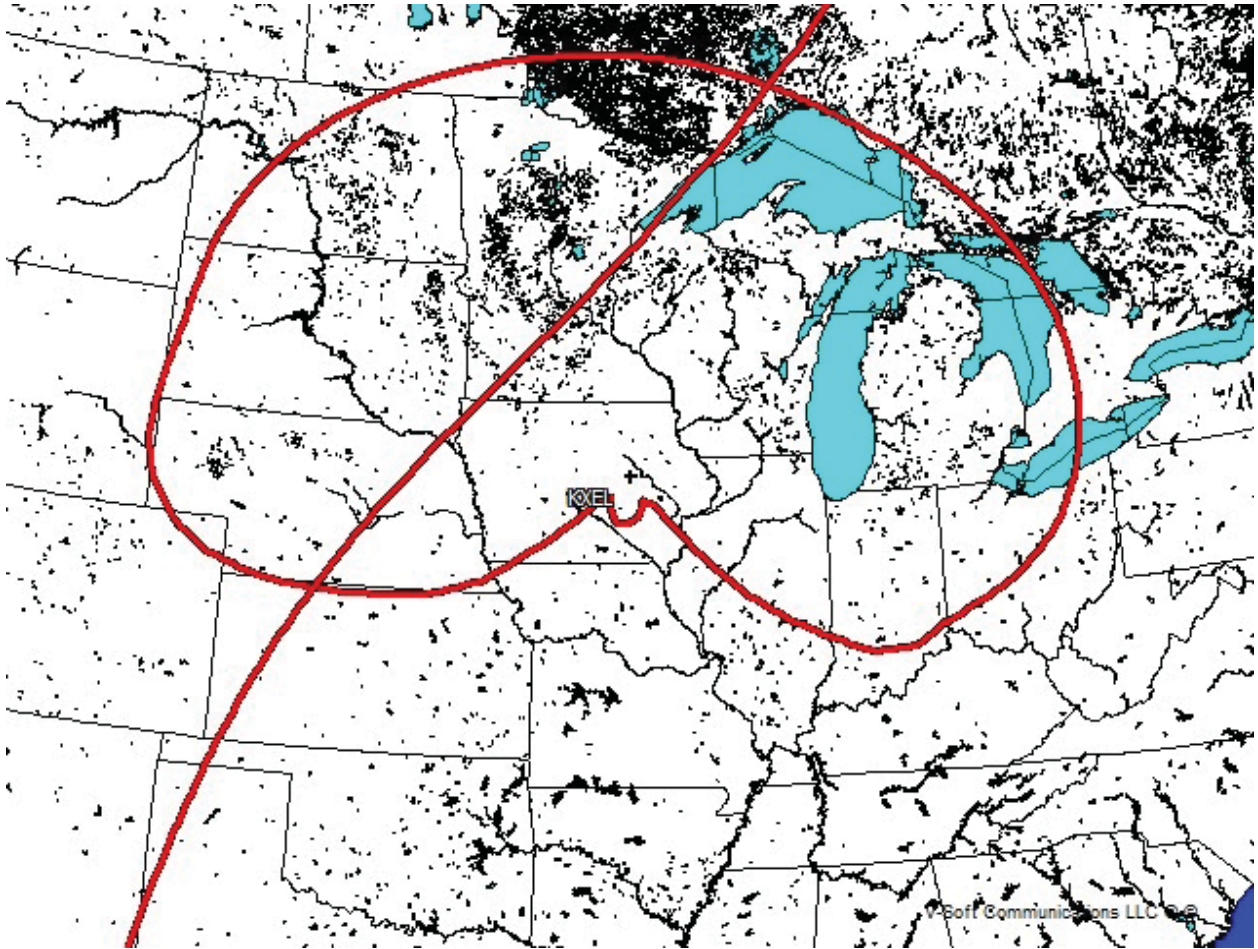
Respectively Submitted,

Hatfield & Dawson Consulting Engineers, LLC

A handwritten signature in blue ink, appearing to read "Benj. F. Dawson III", with a stylized flourish at the end.

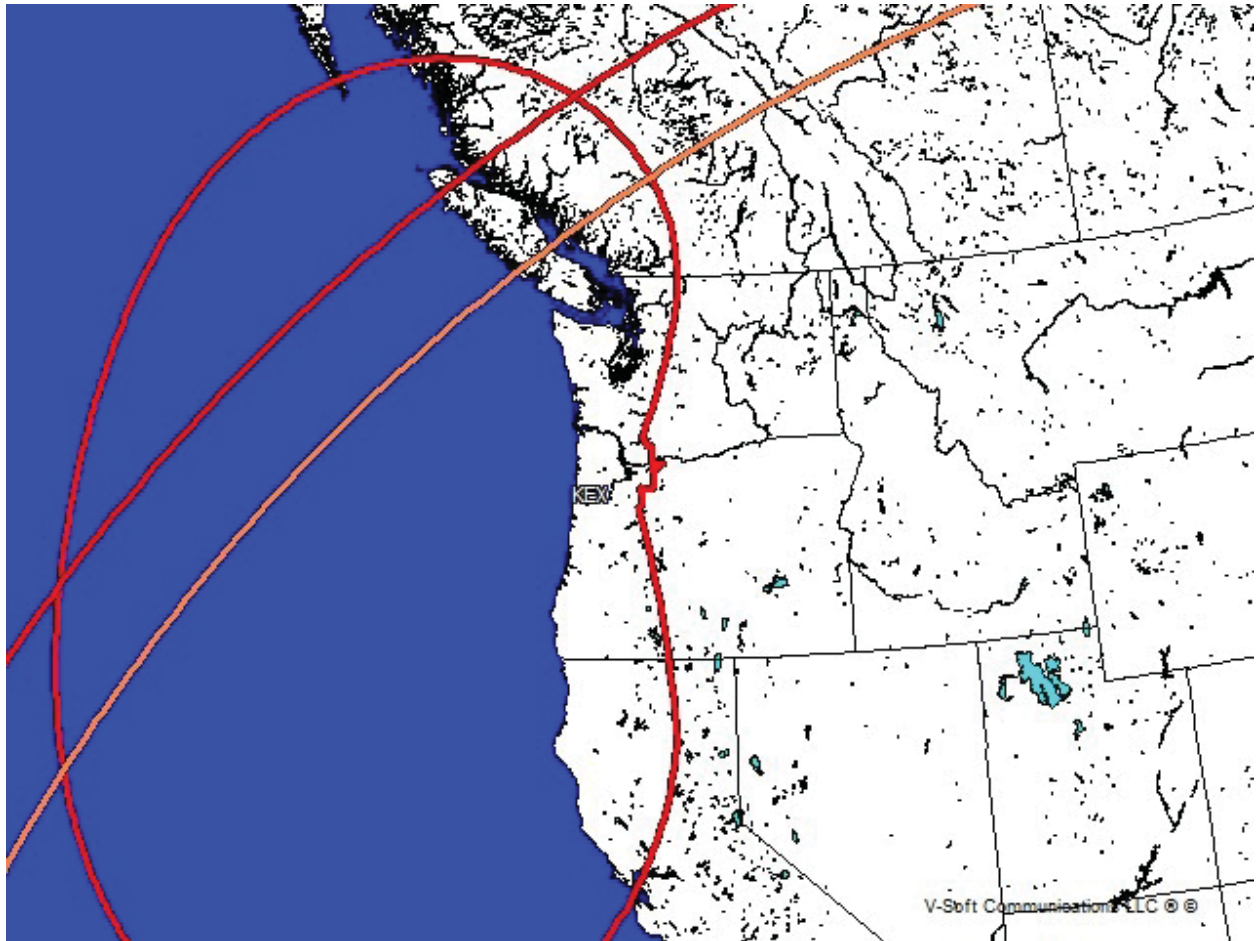
by Benj. F. Dawson III, P.E.

Figures 1-7 Follow

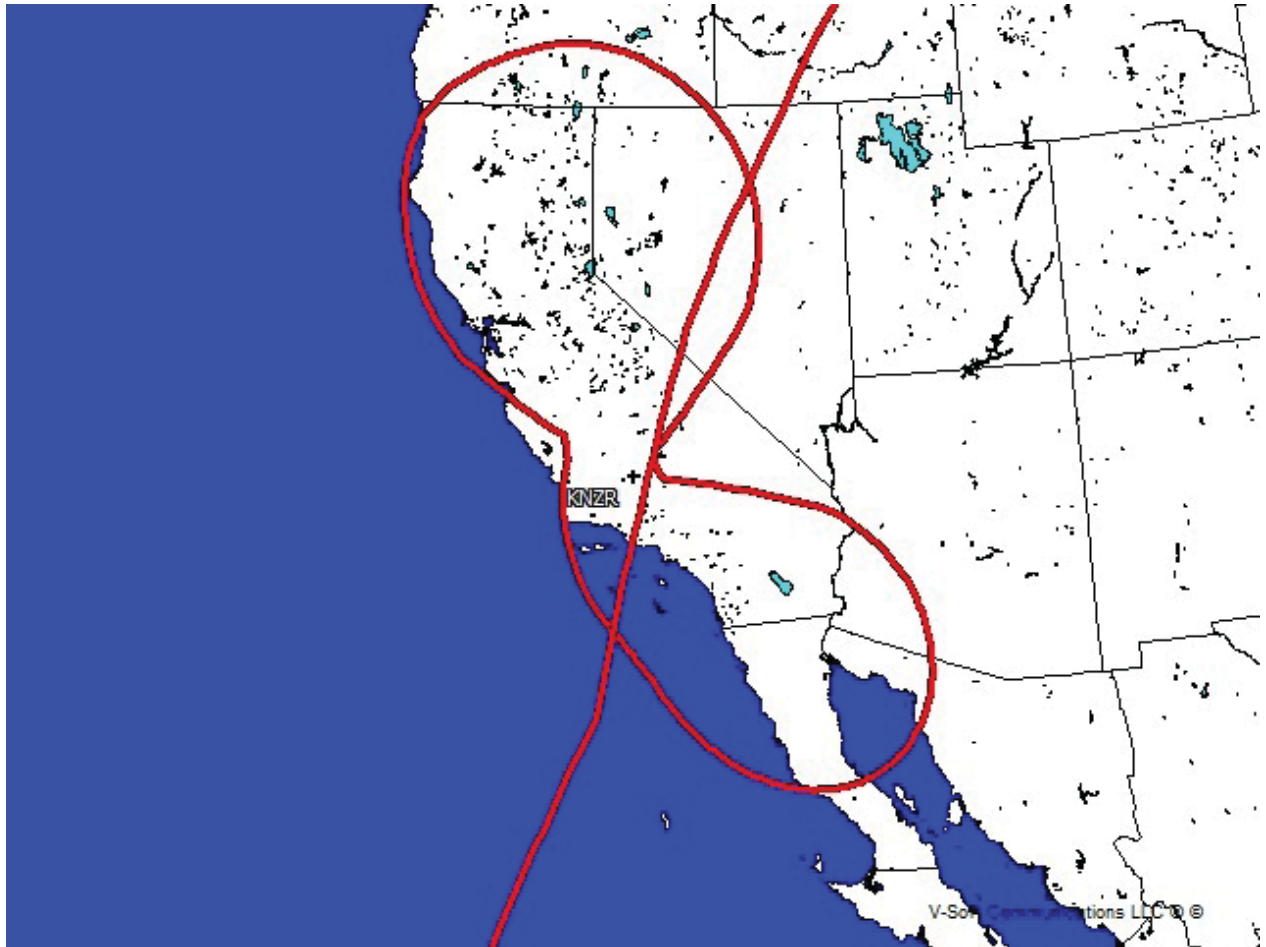


**FIGURE 1**                      ZNS-1 Overlap to KXEL





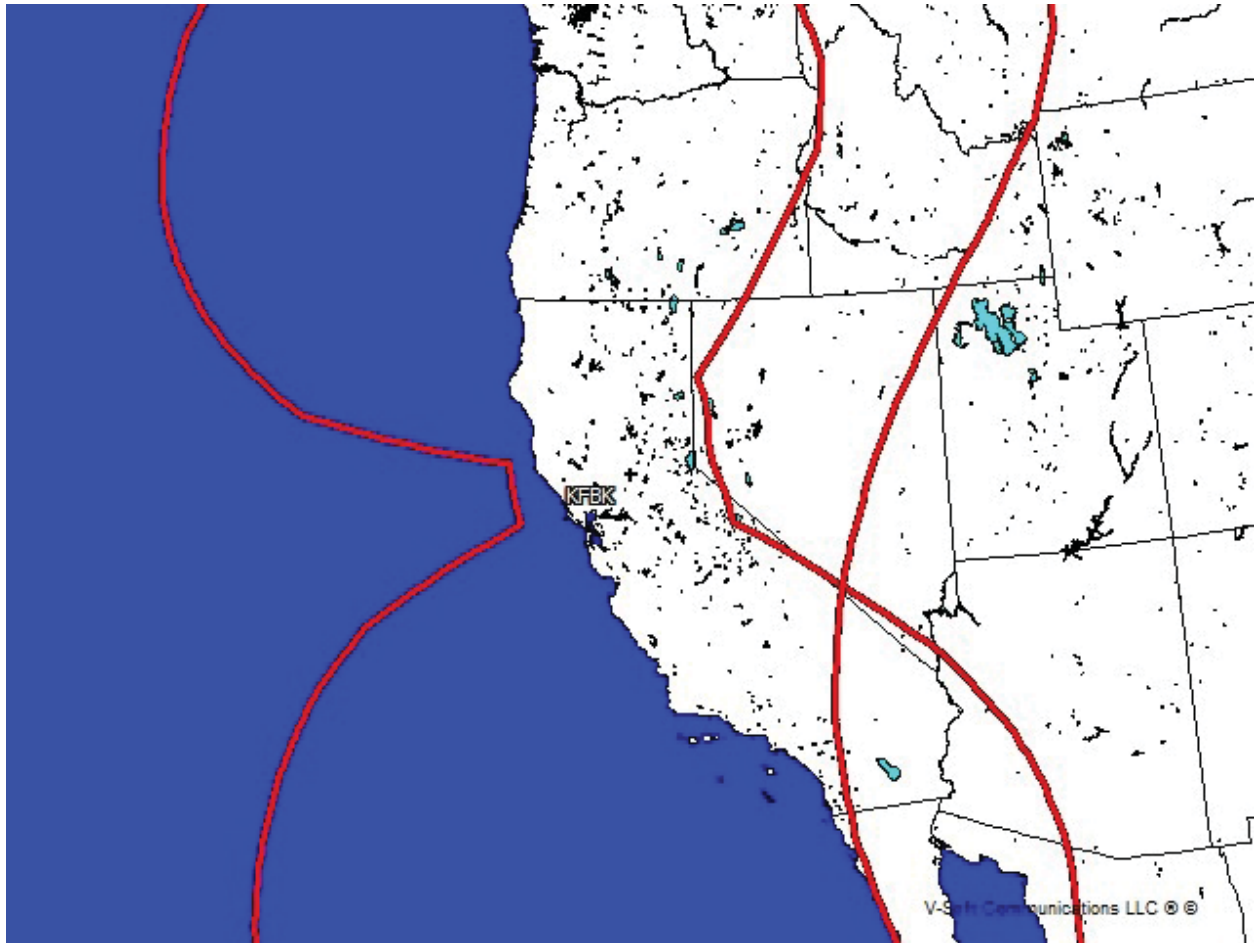
**FIGURE 2** XEWK (Both Notifications) Overlap to KEX



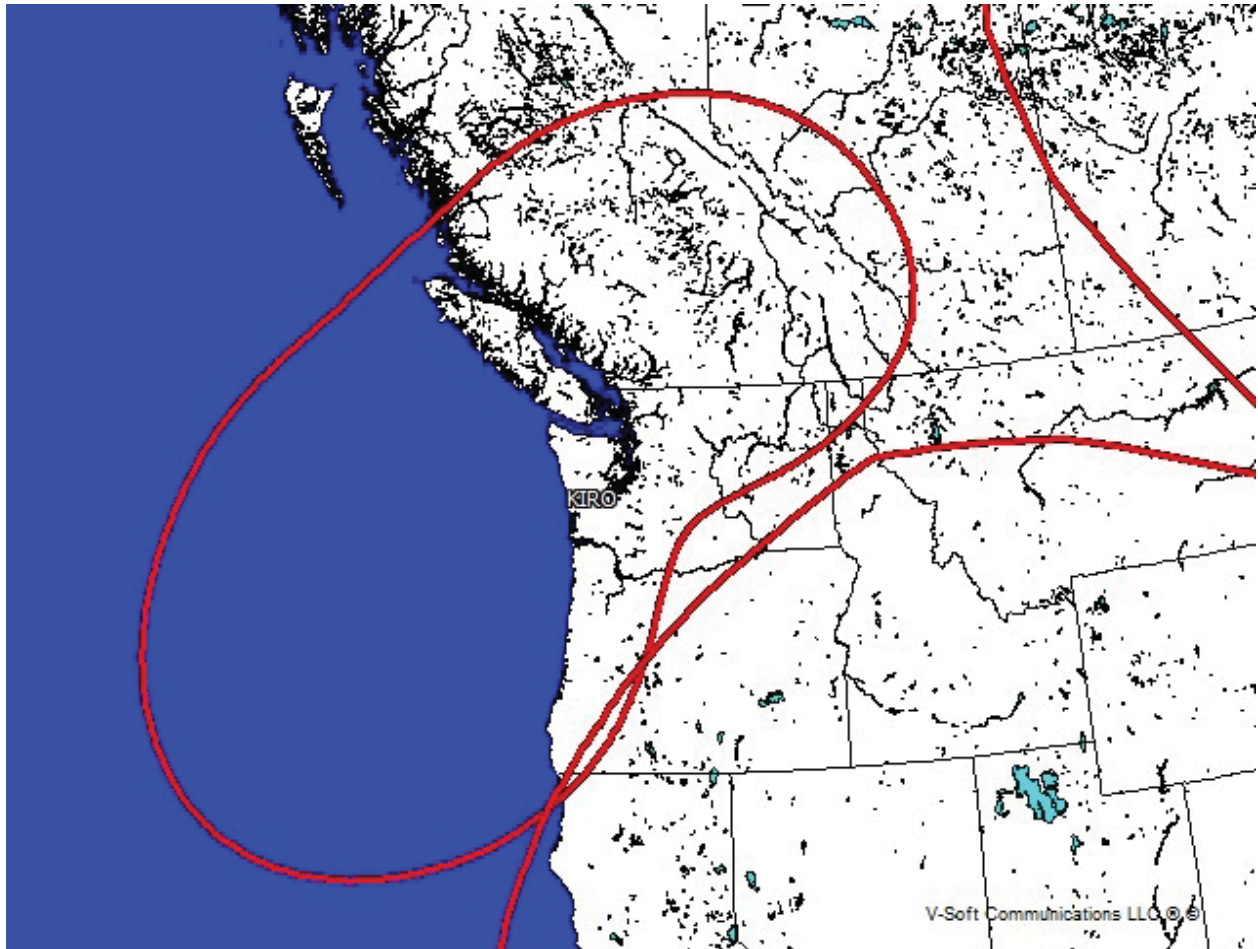
**FIGURE 3**

WFME Overlap to KNZR

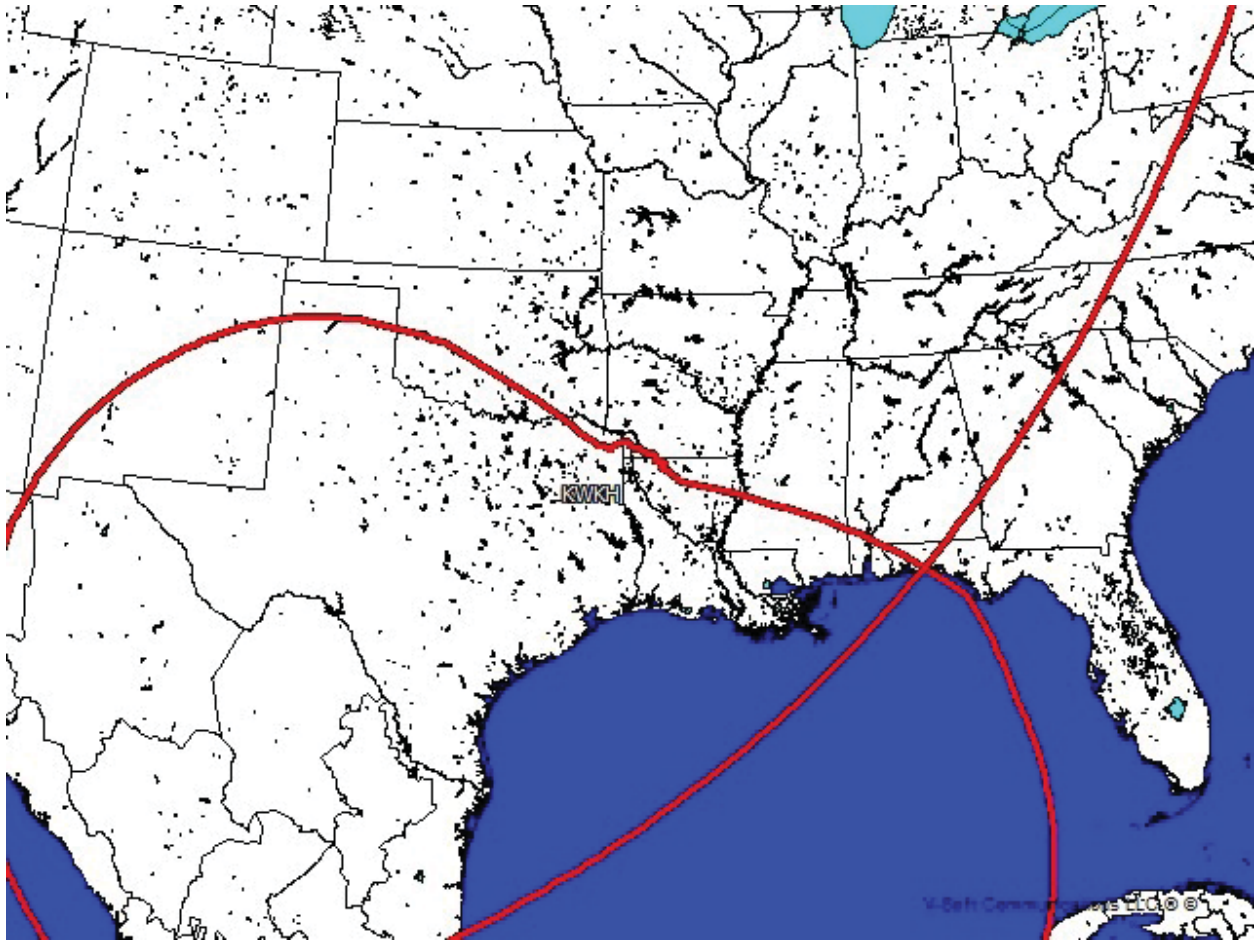




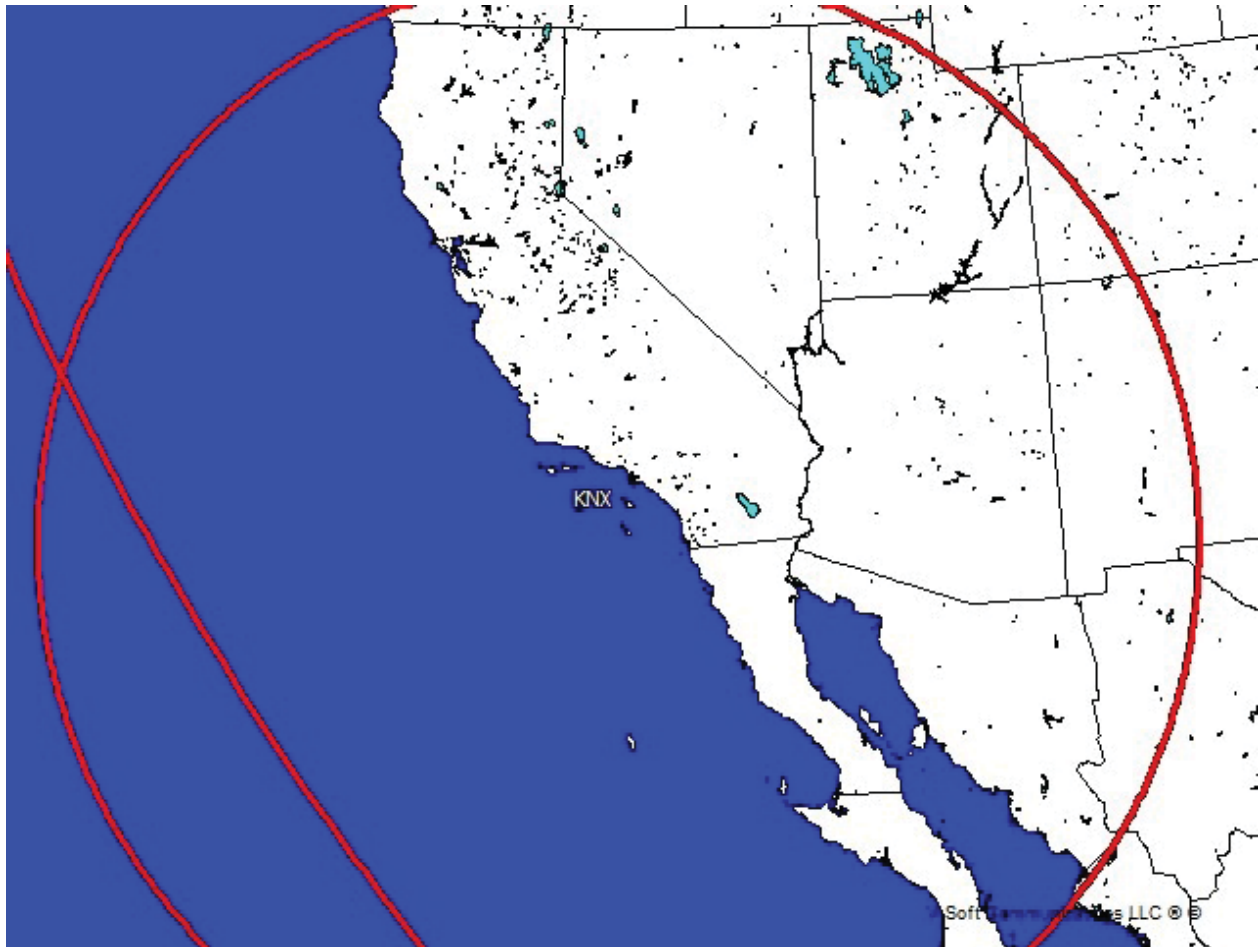
**FIGURE 4** WCKY Overlap to KFBK



**FIGURE 5** KCMO Overlap to KIRO



**FIGURE 6** CKWX Overlap to KWKH

**FIGURE 7**

CBA Overlap to KNX